Investigating Functional and Symptom Scales of Quality of Life and Its Effective Factors among Patients with Breast Cancer during Chemotherapy

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Abstract

Background: Breast cancer is the most common cancer among women. Considering its long process of the treatment and significant influence on the health of patients, we aimed to investigate the functional and symptom scales of quality of life and the factors affecting patients with breast cancer during chemotherapy.

Method: In this cross-sectional study, 94 women with breast cancer visiting Imam Reza Healthcare Center in Mashhad, who were in the course of chemotherapy, selected through convenience sampling. To investigate the functional and symptom scales of the quality of life, EORTC QLQ-BR23 was used. Data was analyzed via multiple linear regression model and significance level was considered as 0.05.

Results: In functional scales, the highest and lowest score were obtained for sexual functioning (38.12±18.55) and future perspective (17.73±19.98), respectively. In the symptom scales, the highest and lowest score belonged to upset by hair loss (28.39±25.66) and breast symptoms (6.74±10.39), respectively. The results of multiple regression analysis showed that education had a negative effect on body image, menopause had a positive effect on sexual function, and tumor size had a negative effect on breast symptoms.

Conclusion: Breast cancer deserves serious consideration as it affects different aspects of quality of life. Therefore, it is absolutely essential to take some measures for early diagnosis, achieve better therapeutic methods, use supportive therapy to decline the symptoms of the disease, and promote the functional level of women with breast cancer.

Keywords: Quality of life, QLQ-BR23, Functional scales, Symptom scales

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Introduction

Quality of life (QOL) has always been a significant subject among healthcare providers who are in search of healthcare quality improvement. According to WHO, QOL is defined as a state in which a person feels healthy and content, physically, mentally and socially. This definition is completely subjective and based on the individuals' perception from different aspects of their lives. It has been stated in various studies that QOL is affected by different variables, one of which is physical health status and effect of chronic diseases.[1-5] Chronic diseases are long-term which cause physical changes in the body and limit the functions of the patient. People suffering from chronic diseases often bear such a burden of disease which adversely affects their health-associated QOL.[4,6,7] Cancer is one of the most important chronic and common diseases which is significantly considered as a major health problem affecting the public health. Among the different types of cancer, breast cancer is one of the most prevalent and terminal diseases in the world accounting for about 33% of all cancer cases among women. In a similar manner, the increase in the incidence rate of breast cancer in Iran during the past four decades has placed it among the most frequent malignancies among Iranian women.[8-11]

Facing cancer as a stressful event can endanger different aspects of a patient's personal health including physical, psychological, and familiar health. Different studies have indicated that the main issues affecting the life of a cancer patient include psychological and emotional problems resulting from the disease, diagnostic and therapeutic measures, treatment complications, long course of treatment, frequent hospitalization, and the dissociation of familial, marital, and social relationships due to the disease and financial burden. Accordingly, the investigation of QOL has, in the recent years, attracted a great deal of attention in healthcare especially in the studies related to breast cancer. In addition, measurement of QOL in breast cancer patients could assist in examining their health status, effectiveness of medical and health interventions, and estimating and planning the cost of effective healthcare policies.[12-15]

Iran is also among the countries in which cancer is very much likely. Cancer challenges the life and brings about adverse consequences. Basically, it is very important to identify the factors affecting QOL among these patients, on account for the high prevalence of breast cancer in Iran, its diagnosis and the complications because of the effect of this cancer on the patient's health and QOL and the fact that long survival of patients of disease would cause their more involvement in the cancer complications and consequences.[1, 16] Thus, this study was conducted to investigate the functional and symptom scales of QOL among Iranian women with breast cancer during chemotherapy in 2015.

Material and Methods

This cross-sectional study was conducted in 2014-2015 on 94 women with breast cancer, who visited Imam Reza Healthcare Center (affiliated with Mashhad University of Medical Sciences). The study was approved by the Ethics Committee of Mashhad University of Medical Sciences (code: 930101) and informed consent was received from all of the subjects.

All the subjects included women with non-metastatic breast cancer who were undergoing chemotherapy in adjuvant setting between January 2014 and January 2015 (N=94). The sampling was done by convenience method. For this purpose, the researcher went to the mentioned center and selected the eligible women according to the inclusion criteria.

The inclusion criteria were: 1- being Iranian and resident in Mashhad; 2-being married;3- having at least elementary school literacy; 4- being passed at least two months since the diagnosis; 5- not having any disease or other malignancies in addition to breast cancer and 6- not using psychiatric drugs or being a drug abuser.

To collect the data, demographic and clinical characteristics questionnaire and EORTC QLQ-BR23 were used. Demographic and clinical characteristics questionnaire included three

sections. The first section included personal and family characteristics. The second section contained the information related to the history of pregnancy and delivery and third section encompassed the information related to the clinical status. Furthermore, we used EORTC QLQ-BR23, a questionnaire which was specifically designed to investigate QOL in patients with breast cancer and examine four functional scales (body image, sexual functioning, sexual enjoyment, and future perspective) and four symptomatic scales (systemic therapy side effects, breast symptoms, arm symptoms, and upset by hair loss). All of the scales and single-item measures ranged from 0 to 100. A high scale score represents a higher response level. Thus a high score for a functional scale represents a high / healthy level of functioning but a high score for a symptom scale / item represents a high level of symptomatology / problems.[17]

The reliability and validity Persian version of the EORTC QLQ-BR23 has been examined in the study by Montazeri et al, which had a suitable reliability and validity.[18] To describe the data, central tendency indices (mean ± standard deviation) and frequency distribution table were used. The relationship between demographic, as well as, clinical variables and different functional and symptom scales of QOL was explored using multiple linear regression models through backward elimination procedure. All analyses were performed by SPSS software (version 16) and the significance level was considered as 0.05.

Results

In this study, 94 patients with breast cancer were investigated. The mean age was 45.20±8.63, the majority of whom (N=66, 70.2%) were younger than 50 years old. The cut-off point for age was 50 according to Abdollahi et al.[19] The majority of the patients (N=55, 58.5%) had an under-diploma level of education. A total of 65 (69.1%) and 49 (52.1%) women had been treated by radiotherapy and hormone therapy, respectively. The demographic information related to the women participating in this study is presented in

Table 1. The frequency distributions of demographic and social characteristics of participants

Variable	Frequency (Percent) N (%)
Age	
<50	66 (70.2)
≥50	28 (29.8)
Education	
Under diploma	55 (58.5)
Diploma and higher	39 (41.5)
Occupation	
Housewife	60 (63.8)
Employed	34 (36.2)
Family Income Level	
Less than sufficient	55 (58.5)
Sufficient	39 (42.4)
Menopause	
Yes	53 (56.4)
No	41 (43.6)
Surgery	
Conservative	46 (48.9)
Mastectomy	48 (51.1)
Radiotherapy	
Yes	65 (69.1)
No	29 (30.9)
Endocrine therapy	
Yes	49 (52.1)
No	45 (47.9

table 1.

In functional scales, the highest score belonged to sexual functioning (38.12±18.55) and the lowest score belonged to future perspective (17.73±19.98). In symptom scales, the highest score belonged to upset by hair loss (28.39±25.66) and the lowest score belonged to breast symptoms (6.74±10.39). It's worth mentioning that a high score for a functional scale represents a healthy level of functioning; whereas, a high score for a symptom scale represents a high level of complications.

The information related to the functional and symptom scales of QOL has been provided in table 2.

To examine the factors affecting different dimensions of QOL, linear regression model (backward elimination procedure) was used. The results obtained from the linear regression model showed that three variables including level of education, menopause, and tumor size affect the

Table 2. Description of the QLQ-BR23 in patients

Variable		Mean ± SD
Functional scales	Body image	22.61 ± 11.82
	Sexual functioning	38.12 ± 18.55
	Sexual enjoyment	37.23 ± 22.85
	Future perspective	17.73 ± 19.98
	Systemic therapy side effects	20.11 ± 14.55
Symptom scales / items	Breast symptoms	6.74 ± 10.39
	Arm symptoms	9.22 ± 12.58
	Upset by hair loss	28.39 ± 25.66

functional and symptom scales of women's QOL.

In this regard, the level of education had a negative effect on body image, with the mean body image scores being 5.4 units less in the group who had diploma and above level of education compared to other groups, which was statistically significant (P =0.03). Furthermore, menopause had a positive effect on sexual functioning, such that in postmenopausal women, the mean menopause score was 9.21 units greater than the other group and statistically significant (P =0.02). The results also showed that the systemic therapy side-effects decrease with the increase of education level, so in the group with the level of diploma and above, the mean score of complications was 6.28 units less as compared to the other group (P=0.03). Concerning the breast symptoms, the results indicated that with the increase of the tumor size, breast complications augmented, where with 1 cm increase in the tumor size, the breast complications grew by 3.74 units (P=0.01). In addition, bigger tumor size led to aggravation of arm symptoms, where 1 cm increase in tumor size led to the rise of the mean score of arm symptoms by 4.30 units (P=0.01).

No significant relationship was observed between QOL of the cancer patients and age, occupation, level of family income, radiotherapy, hormone therapy, and type of surgery.

Discussion

In the present study in functional scales, the highest score belonged to the sexual functioning and the lowest score belonged to the future perspective, and in symptom scales, the highest score belonged to upset by hair loss and the lowest score belonged to breast symptoms. The results also showed that the variables, including level of education, menopause, and tumor size have a significant effect on functional and symptoms scales of QOL. We observed that the education had a negative effect on body image. Stated as an important element in the QOL of patients with cancer, body image refers to an individual's perception about the body size and proportion, associated with other's thoughts, emotions, and attitudes towards the individual's body. It is quite significant in the psychological function of the person (i.e. patients who have better emotions towards their body also have stronger beliefs in their ability to cope with the disease and in successful treatment). Women suffer more from disorder in their bodily image following cancer because of their active role in the society. Although the studies focused on the factors affecting body image of patients with breast cancer are inadequate, they have generally indicated that the people, who care more about their appearance, are more vulnerable to adaptation.[20,21]

Other studies have also revealed that menopause has a positive effect on sexual functioning. In the studies by Safaee et al., postmenopausal women had a better QOL compared to women in reproductive ages. Regarding the improvement of sexual function during menopause period, some researchers have stated that many women consider menopause period as liberation period due to termination of reproductive years. This is not only because of the decrease in their responsibilities towards their children, but also that they no longer are afraid of pregnancy and thus feel more comfortable

compared to pre-menopause period. As a result, they may seem more sexually active than before.[22,23]

It has been stated that pleasurable sexual relationships are one of the most important factors in a healthy QOL, which if not met, could cause dissatisfaction in spouses eventually leading to collapse of marital life and problems (e.g. depression). Therefore, considering the importance of sexual life in women's lives and in keeping physical and mental health of the individual and family and also the higher rate of sexual problems in women with breast cancer in reproductive years, measures should be taken to identify and solve the sexual problems of this group of patients.[24-26]

The results also indicated that the systemic therapy side-effects decline with elevation of education level. Overall, the way the education level affects the QOL is equivocal. Nevertheless, various studies have shown that patients with lower levels of education are more likely to have problems in understanding medical prescriptions and educational interventions which may result in the increased systemic therapy side-effects. Therefore, design of education-based interventional programs for patients with lower levels of education might be deemed as a solution to promote QOL among these women.[27,28]

With regards to the breast symptoms, the results showed that the increased tumor size correlated with higher breast complications. In this regard, it can be speculated that the earlier the disease is diagnosed, the better the prognosis will be, and thus the therapeutic measures will be less invasive. This would allow for a better QOL for these patients. This finding highlights the importance of early diagnosis in enhancing the QOL of the patients.[29] By bringing about different changes and tensions, cancer affects a patient's life in different manners, the reaction to which depends on the patient, his psychological structure, and social environment, which in turn can influence all activity levels of the patient. Today, survival from cancer is not the only goal; rather patients want a life with a favorable quality. For this reason, improvement of the QOL among cancer patients with cancer is the primary objective of healthcare. Among the important duties of healthcare teams are improving functional status, reducing disease symptoms, and generally enhancing the QOL of the patients.[20,21,30]

The results of this study can be used as a guideline for planning and taking interventional measures in areas including therapeutic methods, rehabilitation, social work, financial aids, and providing more facilities aimed to help these patients. Also, in addition to physical dimensions, psychological issues of the patients should also be taken into account by employing the experts of this field.

It is worth mentioning that this study was limited in some of its aspects including its cross-sectional nature, low sample size, and lack of information regarding treatment details and tumor coordinates. Thus, longitudinal studies with larger sample sizes are recommended.

Conclusion

Breast cancer deserves serious consideration as it affects different aspects of QOL. Therefore, taking measures for early diagnosis, design of better therapeutic methods, and use of supportive therapies aimed to decrease the symptoms of the disease and promote the functional level of women with breast cancer seem to be essential.

Acknowledgement

Conflict of Interest

None declared.

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